

IN THE SPECIFICATION

Please replace the paragraph beginning at page 5, line 5, with the following rewritten paragraph:

Briefly these objects and other objects of the present invention as hereinafter will become more readily apparent can be attained by a charging device including a charging roller having a metal cylinder and an elastic layer located on the metal cylinder, a cleaner configured to clean the charging roller, and a member configured to impart substantially the same potential as that of the charging roller to an electroconductive brush roller of the cleaner when ~~[[s]]~~ a bias is applied to the charging roller. The cleaner includes the electroconductive brush roller having a roller and hair located overlying of a roller of the electroconductive brush roller. The hair include a fiber which has a width of from 0.1 to 20 denier, and a length of from 0.3 to 2.5 mm and which is planted at a density of from 7,000 to 46,000 lines/cm<sup>2</sup>.

Please replace the paragraph beginning at page 9, line 2, with the following rewritten paragraph:

~~Fig. 3 is a~~ Figs. 3 A and 3B are schematic ~~view~~ views illustrating an embodiment of the cleaner of the charging device of the present invention;

Please replace the paragraph beginning at page 9, line 13, with the following rewritten paragraph:

Figs. 7A to 7C are schematic views of a toner particle for explaining the major axis particle diameter, minor axis particle diameter and thickness of the toner particle~~[[.]]~~;

Please insert the following paragraph at page 9 between lines 15 and 16:

Figs. 8 and 9 illustrate the oscillating device and one-way clutch, respectively, for charging device.

Please replace the paragraph beginning at page 9, line 25, with the following rewritten paragraph:

An image forming apparatus (i.e., an electrophotographic copier) 100 includes a scanner unit 20 which reads the image of an original, an image forming unit 30 which reproduces the read image on a receiving material 5, and a paper feeding unit 40 which timely feeds the receiving material 5 to the image forming unit 30. The image forming unit 30 includes a photoreceptor 1 serving as an image bearing member, [[and]] a charger 2, a light irradiator 3, a developing device 4, a transferring device 6, a fixing device 7 and a cleaning device 8, which are arranged in the vicinity of the photoreceptor 1 even after the transfer process. Numeral 9 denotes a discharger configured to irradiate the photoreceptor 1 with light to discharge charges remaining on the photoreceptor 1.

Please replace the paragraph beginning at page 10, line 17, with the following rewritten paragraph:

The charger 2 has a charging roller 2a having a metal cylinder and an elastic layer formed on the peripheral surface of the metal cylinder, a cleaner 2b and a power source (not shown) connected with the charging roller 2a. The power source ~~applied~~ applies a high voltage to the charging roller 2a to form a predetermined high electric field at the charging portion in which the charging roller 2a faces the photoreceptor 1. As a result, corona discharging occurs at the charging portion, and thereby the surface of the photoreceptor 1 is uniformly charged.

Please replace the paragraph beginning at page 12, line 2, with the following rewritten paragraph:

The transfer device 6 includes a transfer belt 6a, a transfer bias roller 6b, and a tension roller 6c. The transfer bias roller 6b has a metal cylinder and an elastic layer formed on the metal cylinder. When a toner image is transferred from the photoreceptor 1 to the receiving material 5, ~~[[a]]~~ pressure is applied to the transfer bias roller 6b to press the receiving material 5 to the photoreceptor 1.

Please replace the paragraph beginning at page 14, line 25, with the following rewritten paragraph:

Since the brush roller 20 is driven by the charging roller 2a, it is not necessary to provide a driving device of the brush roller 20, and thereby the configuration of the cleaner 2b can be simplified. In addition, it is ~~avoided~~ unnecessary to press the charging roller 2a with the brush roller 20 at an excessive pressure, and thereby abrasion of the surface of the charging roller 2a can be prevented.

Please replace the paragraph beginning at page 15, line 5, with the following rewritten paragraph:

The brush roller 20 has hair thereon, in which fiber having a thickness of from 0.1 to 20 denier and a length of from 0.3 to 2.5 mm are planted at a density of from 7,000 to 46,000 fibers/cm<sup>2</sup>. When the fiber is too thin, the hair tends to ~~be felt~~ fall down when the brush roller 20 is brought into contact with the charging roller 2a. In contrast, when the fiber is too thick, the density of the fiber decreases, resulting in deterioration of cleaning efficiency of the cleaner.

Please replace the paragraph beginning at page 15, line 13, with the following rewritten paragraph:

When the density of the fibers is too low, the cleaning efficiency deteriorates. In contrast, when the density is too high, the spaces in the hair for containing collected toner particles decrease. When the fiber is too long, the hair is ~~fell~~ falls down when the brush roller 20 is brought into contact with the charging roller 2a.

Please replace the paragraph beginning at page 17, line 16, with the following rewritten paragraph:

In ~~Fig. 3~~ Figs. 3A and 3B, the brush roller 20 is rotated while driven by the charging roller 2a, i.e., the brush roller 20 rotates in a direction (i.e., counterclockwise) opposite to that (clockwise direction) of the charging roller 2a. However, the brush roller 20 can be rotated so as to counter the charging roller 2a at their contacting portion, i.e., the brush roller 20 can be rotated in the same direction as that of the charging roller 2a. By rotating the brush roller 20 in the same direction as that of the charging roller 2a, the mechanical cleaning ability of the brush roller 20 can be further improved.

Please replace the paragraph beginning at page 18, line 4, with the following rewritten paragraph:

In addition, the cleaner 2b preferably has an oscillating mechanism (Fig. 8) configured to oscillate the brush roller 20 in the longitudinal direction of the brush roller 20. For example, a bearing is provided on the tip of the shaft of the brush roller 20 so as to face the surface of an oscillating cam of a gear. When the charging roller 2a rotates, the gear with

the oscillating cam is also rotated, and thereby the brush roller 20 is oscillated in the longitudinal direction of the brush roller 20.

Please replace the paragraph beginning at page 18, line 21, with the following rewritten paragraph:

Alternatively, a one-way clutch (Fig. 9) can be provided on the shaft of the brush roller 20. During the image forming operations are performed, the one-way clutch is locked, i.e., the brush roller is stopped. Therefore, the charging roller 2a is cleaned while being rubbed by the stopped brush roller 20. After the image forming operations, the photoreceptor 1 is stopped while being slightly rotated reversely. At this point, the brush roller 20 is also slightly rotated via the one-way clutch and then stopped. By using such a mechanism, ~~it is prevented that~~ the brush roller 20 is prevented from being contacted with the charging roller at an excessive pressure, and thereby abrasion of the surface of the charging roller 2a can be prevented. In addition, the contact surface of the brush roller 20 with the charging roller 2a can be changed little by little, and thereby cleaning can be well performed at any time.

Please replace the paragraph beginning at page 20, line 3, with the following rewritten paragraph:

The toner for use in the image forming apparatus of the present invention preferably has a volume average particle diameter ( $D_v$ ) of from 3 to 8  $\mu\text{m}$ , and a ratio ( $D_v/D_n$ ) of the volume average particle diameter ( $D_v$ ) to the number average particle diameter ( $D_n$ ) is preferably from 1.00 to 1.40. Namely, a toner having a relatively small particle diameter and a narrow particle diameter distribution is preferably used. By using a toner having a small particle diameter, the toner can be densely adhered to an electrostatic latent image without being protruded from the latent image, and thereby a high density and high quality image can

be produced. By using a toner having a narrow particle diameter distribution, the charge quantity of the toner particles can be ~~uniformed~~ made uniform, and thereby high quality images without background development can be produced. In addition, the transferability of the toner can also be improved, and thereby the quantity of the toner particles remaining on the photoreceptor can be reduced, resulting in extension of the life of the cleaner for cleaning the charging roller.

Please replace the paragraph beginning at page 22, line 1, with the following rewritten paragraph:

The toner for use in the image forming apparatus preferably has a form factor SF-1 greater than 100 and not greater than 180 and a form factor SF-2 greater than 100 and not greater than 180. When the toner has a particle form near the true spherical form, the contact area of a particle of the toner with another particle of the toner decreases, resulting in decrease of the adhesion between the toner particles, and thereby the toner has good fluidity. In addition, the contact area of a particle of the toner with the photoreceptor also decreases, resulting in decreases of the adhesion of the toner particle to the photoreceptor, and thereby the transferability of the toner improves. On the other hand, a spherical toner having form factors SF-1 and SF-2 of 100 tends to invade ~~into~~ the gap between the first cleaning blade 8a and the photoreceptor 1, and thereby the toner preferably has form factors SF-1 and SF-2 greater than 100. When the form factors SF-1 and SF-2 are too large, a toner scattering problem tends to occur in that toner particles are scattered around toner images ~~tends to occur~~, resulting in deterioration of the image qualities. Therefore, it is preferable that the form factors SF-1 and SF-2 do not exceed 180.

Please replace the paragraph beginning at page 35, line 9, with the following rewritten paragraph:

The master batch for use in the toner for use in the image forming apparatus of the present invention is typically prepared by mixing and kneading a resin and a colorant upon application of high shear stress thereto. In this case, an organic solvent can be used to heighten the interaction of the colorant with the resin. In addition, flushing methods in which an aqueous paste including a colorant is mixed with a resin solution of an organic solvent to transfer the colorant to the resin solution and then the aqueous liquid and organic solvent are separated and removed can be preferably used because the resultant wet cake of the colorant can be used as it is. Of course, a dry powder which is prepared by drying the wet cake can also be used as a colorant. In this case, a three roll mill can be preferably used for kneading the mixture upon application of high shear stress.

Please replace the paragraph beginning at page 36, line 26, with the following rewritten paragraph:

The content of the charge controlling agent is determined depending on the species of the binder resin used, whether or not an additive is added and toner manufacturing method (such as dispersion method) used, and is not particularly limited. However, the content of the charge controlling agent is typically from 0.1 to 10 parts by weight, and preferably from 0.2 to 5 parts by weight, per 100 parts by weight of the binder resin included in the toner. When the content is too high, the toner has too large a charge quantity, and thereby the electrostatic force of a developing roller attracting the toner increases, resulting in deterioration of the fluidity of the toner and decrease of the image density of toner images.

Please replace the paragraph beginning at page 40, line 11, with the following  
rewritten paragraph:

~~Then the~~ The method for manufacturing the toner for use in the present invention will  
now be explained. However, the manufacturing method is not limited thereto.